

Unit 9 Review A

Ch 32-33

In addition to knowing vocab definitions, be sure you can apply them to understand the following:

Ch 32

- **Anatomy and Physiology**
 - What does multicellularity allow for, and what does this require as a result?
 - Explain the hierarchy by which cells are organized into
 - For each organ system, know some of the main organs/structures involved and their function
 - Animal tissues can be grouped into what 4 categories?
 - For each category, know
 - Examples
 - Functions
 - Definitions and functions of types/forms/components
 - Ex: 3 types of muscle tissue; forms of connective tissue; etc.
- **Regulating and Conforming**
 - What is the difference between a regulator and conformer?
 - What are examples of each?
- **Homeostasis**
 - What is homeostasis?
 - What are some examples?
 - What is negative feedback and how is it used in homeostasis?
- **Thermoregulation**
 - What is the difference between endothermic and exothermic animals?
 - Give examples of animals in each category
 - How do they regulate temperature?
 - Which requires less energy?
 - Explain some adaptations used by organisms to exchange heat and enhance thermoregulation
 - How does vasodilation vs vasoconstriction help regulate temperature
 - Where is the temperature-regulating center of mammals located?
- **Endocrine and Nervous Systems**
 - Explain the differences between the signals in the endocrine system vs nervous system
 - Consider pathways, specificity, signal type, transmission, speed, and duration
 - Most types of communication between cells utilize what kind of signals?
 - Which system coordinates body functions via these kind of signals?
 - How do hormones travel to target cells?
 - What organ acts as both an endocrine and exocrine gland?
 - What structure integrates the endocrine and nervous systems?
 - What is positive feedback and what is its role in animals?
 - Hormones that promote homeostasis typically use what type of feedback?
 - Know a few hormones, their functions, and what organ/gland secretes them
 - Ex: Oxytocin, antidiuretic hormone, epinephrine

- Osmoregulation
 - Why are these processes important to animals?
 - Explain the difference between isosmotic, hyperosmotic, and hypoosmotic solutions and how they affect water movement
 - How would a freshwater organism react to being placed in salt water and why?
 - How would a marine organism react to being placed in freshwater and why?
 - What is the difference between an osmoconformer and osmoregulator?
 - Which is isosmotic with its surroundings?
 - All osmoconformers are what types of animals?
 - How do osmoregulators control water uptake and loss?
 - How do land animals prevent dehydration?
 - What is the benefit of producing urea or uric acid over ammonia?
 - What are the pros and cons of producing uric acid?
 - Which types of organisms produced which types of wastes?
- Excretion
 - Explain the 4 key functions of most excretory systems
 - What are the differences between protonephridia, Malpighian tubules, and kidneys?
 - Which types of organisms use which structures?
 - What are the functional units of vertebrate kidneys?
 - Know the vocab associated with the parts of a kidney and its functional units
 - What part of the kidney is important in filtration?
 - In which section of the nephron does each of the following occur?
 - Ions, water, and nutrients are reabsorbed
 - Filtrate loses water, become more concentrated
 - Filtrate becomes more dilute
 - Why?
 - Movement of ions is controlled, contributing to pH regulation
 - Water, sugars, amino acids, vitamins, and other nutrients are reabsorbed
 - Which type of transport requires energy?
 - What adaptations do desert dwelling mammals have to regulate water?
 - What conditions would cause more antidiuretic hormone to be secreted and why?
 - Where are the target cells for this hormone found?

Ch 33

- Diet
 - What does an animals' diet provide?
 - Why are some nutrients considered "essential?"
 - What is the difference between vitamins and minerals?
 - What is the difference between malnutrition and undernutrition?
- Food Processing
 - Explain the four stages of food processing
 - Explain different strategies for ingesting food
- Digestion
 - By what process are fats and proteins broken down into their monomers?
 - What is the purpose and benefit of an alimentary canal (complete digestive system)?

- Mammalian Digestive System
 - Be able to identify and explain the function of EACH organ in the alimentary canals and accessory glands
 - Know the location of each organ and how/where they are connected to other organs (see Figure 33.8)
 - Know the vocab!
 - Which organ has a very low (acidic) pH?
 - What enzyme works well in this environment and what is its function?
 - Where are proteins vs starches digested?
 - Which organ is primarily responsible for absorption of nutrients?
 - Where is bile produced vs stored?
 - What is its function?
 - What is the function of villi and microvilli and how does their form fit this function?
 - What is the function of the colon vs cecum?
- Adaptations
 - How do the shapes of the teeth of carnivores, herbivores, and omnivores differ?
 - How is each useful given its diet?
 - What adaptations have developed in herbivores like cows and rabbits to help digest plants?
 - What types of animals have a larger cecum and why?
- Energy
 - What factors can be used to determine an organism's metabolic rate?
 - What is the minimum metabolic rate in endotherms vs ectotherms called?
 - When should this rate be measured?
 - Which is more costly in terms of energy?
 - Which is typically higher?
 - Which energy deposits are used first vs last?
- Glucose Homeostasis
 - What hormones are used to maintain glucose levels?
 - Which is secreted when glucose levels drop vs rise?
 - What might cause glucose levels to drop vs rise?
 - Where are these hormones produced?
 - What is the difference between type 1 and type 2 diabetes?
 - What health issues are linked to obesity?